Ad ♂, SA:60 Ad ♀, SA:61 Juv ♂). Both adults were seen feeding the juvenile on separate occasions, clearly indicating recent local breeding, although the testes of the male had already regressed. Their plumage is very worn, with no patterning left on the feathers, although the female has started moulting the inner 2 primaries. Unfortunately the specimens were all somewhat damaged during initial storage in a freezer, but the juvenile plumage can be partially described:- upperparts, wings and tail very dark brown with large buff spots on the back and head; rufous-buff tips to the greater coverts forming a narrow wing bar; secondaries narrowly edged with rufous, the tertials with broad buff edges; the tail with a narrow rufous tip. From what is left of the feathers, the underparts appear similar to those of the adult, but the chest markings are darker brown.

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References:

Amadon, D. & duPont, J. E. 1970. Notes on Philippine birds. *Nemouria* 1: 1–14.
Siebers, H. C. 1928. Neue vögel von Sumba. *Treubia* 10: 399–404.
Wells, D. R. 1977. *Muscicapa williamsoni* Deignan: a reappraisal. *Bull. Brit. Orn. Cl.* 97: 83–87.
— 1982. Notes on some representatives of the Brown Flycatcher *Muscicapa latirostris* Raffles in Southeast Asia. *Bull. Brit. Orn. Cl.* 102: 148–153.

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Weights and gonad condition of some Thai birds

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Many studies on the distribution and taxonomy of birds in Thailand have recorded standard body measurements taken from skins (eg. Chasen & Kloss 1932, Deignan 1945, Riley 1938), but little appears to have been published on the weights of Thai birds. Even though some 185,000 birds of 491 species were ringed in Thailand during the Migratory Animal Pathological Survey 1963–71 (McClure 1974a), the only published weights are those given by McClure & Kwanyuen (1973) for 66 species. Even elsewhere in Southeast Asia, only a very few detailed studies on individual species have been reported (Medway 1973, Nisbet 1967, Nisbet & Medway 1972, Ward 1969). Comparatively little has been published on the seasonality of breeding among birds in Thailand (Herbert 1923–26, McClure 1974b, Round 1982), while the only information on gonad condition is that given by Deignan (1945).

In this paper, we present weight and, in some cases, gonad data for 1686 birds of 165 species, collected or examined alive and subsequently released, from 12 sites in NW, NE, Central and SE Thailand during September 1980 to December 1982. No data were collected during the months June to August, but there is a fairly even spread for the rest of the year, with most data for January, April and December. Details for shorebirds will be presented elsewhere. Details of the study sites are given in Table 1.

TABLE 1

Study areas in Thailand for trapping and collecting birds

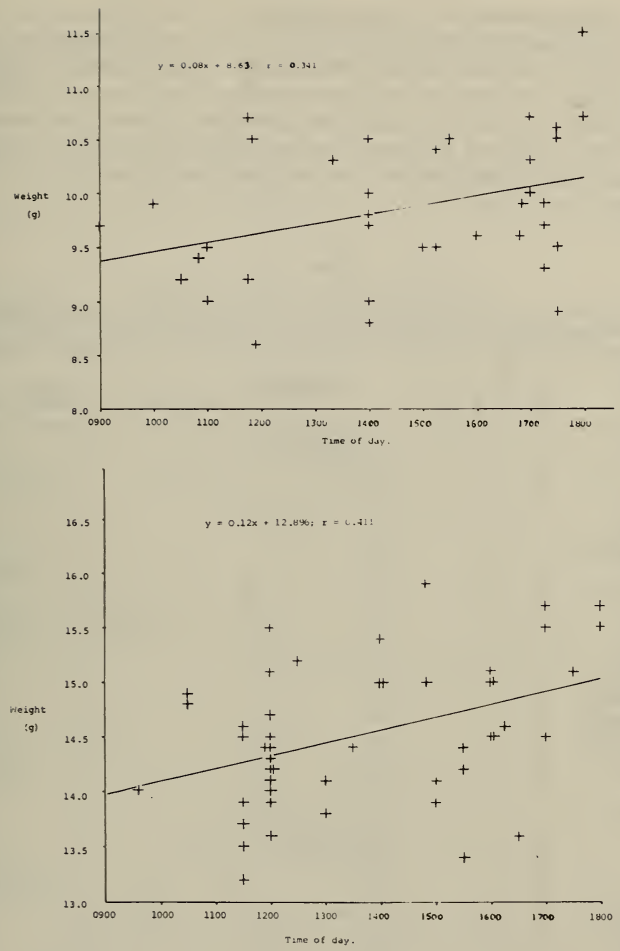
Reference	Location	Coordinates	Habitat and elevation
A	Thathon	20°03′N, 99°20′E	Lowland rice paddy and degraded marshland, 480 m
B	Doi Pha Hom Pok	20°05′N, 99°10′E	Hill evergreen forest and secondary growth, 1400–2200 m
C	Fang	19°55′N, 99°14′E	Lowland rice paddy, 480 m
D	Chiang Mai University Campus	18°47′N, 98°58′E	Swampy scrub and grassland, 300 m
E	Doi Inthanon	18°35′N, 98°29′E	Hill evergreen forest, 1650–2590 m Secondary growth and scrub, 1300 m. Deciduous dipterocarp forest and bamboo, 825 m
F	Beung Boraphet	15°43′N, 100°14′E	Freshwater swamp and scrub, 30 m
G	Khao Yai	14°26′N, 101°22′E	Dry evergreen forest, 800 m
H	Bangpoo	13°30′N, 100°45′E	Coastal mangrove; freshwater marsh, 0–3 m
J	Samut Sakhon	13°29′N, 100°15′E	Coastal mangrove, 0–3 m
K	Bang Phra	13°12′N, 101°01′E	Scrub and grassland adjacent to freshwater lake, 50 m
L	Khao Sam Roi Yot	12°08′N, 99°55′E	Freshwater marsh, 0–10 m

All birds were weighed using Pesola spring balances, birds heavier than 50 g to the nearest 1 g (occasionally to the nearest 0.5 g) while those lighter than this were usually weighed to the nearest 0.1 g. Specimens retained for preparation as museum skins were sexed by dissection and the gonads measured *in situ* using Vernier callipers. Testes were noted as small (inactive) or enlarged (active) and the length of the larger testis was usually measured. Ovaries were noted as inactive unless any individual ova exceeded 0.5 mm in diameter, when the largest ovum was measured. Sex was not recorded for birds released, even in those species with sexually dimorphic plumages, as plumage characters may not always be wholly reliable (eg. a female *Niltava grandis* had blue 'male' plumage on the head and one of the rectrices was blue on the outer web).

Weights

The weight data are too few to permit comparisons between sexes or age classes or to relate to breeding condition or to time of year, although in a few migratory species (eg. *Phylloscopus fuscatus*), there is a suggestion of pre-migratory weight increase in the May samples (Table 2). Interpretation of weights from mixed samples of live and dead birds may need some care; von Bröckel (1973) found that a sample of Garden Warblers *Sylvia borin* weighed within 15 minutes of death averaged more than 1 g (5.5%) lighter than live birds.

Data on weight in relation to time of capture are available for 36 *Alcippe castaneceps* and 49 *A. morrisonia*, 2 mainly insectivorous, forest-living species, caught between 09:00 and 18:00 (data pooled for sites B and E and the months January, February, April and December). Both species showed a gradual increase in mean weights throughout the day (*A. castaneceps* $F_{1,34} = 4.44$, $p<0.05$; *A. morrisonia* $F_{1,47} = 6.36$, $p<0.025$; see Figs 1 and 2 — see Sokal & Rohlf 1981: 471). Although Nisbet & Medway (1972) found that *Acrocephalus* (*arundinaceus*) *orientalis* wintering in reedbeds in lowland Malaysia appeared to be most active in



the first 2–3 hours after sunrise, they did not find any marked changes in mean weights throughout the day. There appears to be no other published information on diurnal weight changes in birds in Southeast Asia.

Gonads

Deignan (1945) noted that the number of species breeding in North-West Thailand increased from November to a peak in April and May, this observation being based primarily on the condition of gonads and the collection of juveniles. Round (1982), working in the same area, found that the onset of nesting for 78 mainly insectivorous species inhabiting hill forest was in February and the relevant gonad data presented here support this conclusion. For many of the forest birds reported both here and by Deignan (1945), enlarged gonads were first recorded in April by Deignan, but were found earlier during this study. Gonad condition was not always recorded by Deignan's collectors and it seems possible that insufficient data resulted in him recording a later start to breeding.

Round (1982) discussed the timing of breeding in NW Thailand and noted that it might be advantageous for hill birds to rear their young to virtual independence before the onset of the rains in May, even though a peak in insect abundance may not occur until later. In moderate elevation forest (600–700 m) at Khao Yai, Central Thailand, McClure (1974b) found peak nesting activity among insectivorous birds between March and June. Herbert (1923–26) found that most birds in the lowlands around Bangkok had nests and eggs during the first half of the wet season, from May to July.

TABLE 2

Weights and gonad condition of some Thai birds.
(R) = resident; (M) = migrant species or subspecies. For key to sites, see Table 1. Data on weights and gonads correspond in serial order. For larger samples, only the range of weights is given. For gonads + = active; − = inactive. Small = testis length < 1.0 mm. In females: 8.3/3.0, for example, indicates ovary 8.3 mm and diameter of largest ovum 3.0 mm.

Species	Site	Month	Sex	n	Weights (g)	mean SD	n	Gonads activity	length (mm)
Butorides striatus (R)	J	2	—	5	193.5, 209.5, 214.5, 226.5, 232.5				
	H	9	—	1	170	200 ± 24			
	H	11	—	1	180.5				
	J	11	—	1	173				
Ixobrychus sinensis (R)	F	2	M	1	81		1	−	3.0
Ixobrychus cinnamomeus (R)	F	1	—	1	89.5				
	F	2	—	1	131				
Arborophila rufogularis (R)	B	1	M	1	212		1	−	6.0
Turnix tanki (R)	B	4	F	1	85		1	+	8.3/3.0
Treron sphenura (R)	E	12	—	1	280				
Ducula badia (R)	E	12	M	1	510		1	−	14.0
Chalcophaps indica (R)	B	1	F	1	110		1	+	12.0/2.0
Cacomantis merulinus (R)	D	12	—	1	27				
Caprimulgus affinis (R)	E	5	F	1	89		1		7.7
Halcyon smyrnensis (R)	D	12	—	1	86				
Halcyon pileata (M)	J	2	—	1	89				
	H	10	—	2	83, 84.5				
	H	11	—	1	92				
Halcyon chloris (R)	J	2	—	1	67				
	J	3	—	1	59.5				
	H	9	—	3	62, 65, 65	62 ± 5			
	H	10	—	1	65				
	H	11	—	2	51, 58				
Merops philippinus (R)	L	5	F	1	32.8		1	+	11.5/5.4
Merops orientalis (R)	D	12	—	1	17.3				
Megalaima franklinii (R)	B	1	M	1	81		1	+	3.5
	B	2	F	1	85.5		1	+	10.2/2.1
	E	12	F	2	76, 93		2	−	9.8, 8.0
Megalaima asiatica (R)	E	12	F	1	78.0		1	−	7.3
Jynx torquilla (M)	D	12	—	1	37.3				
	K	12	—	1	32.4				
Picumnus innominatus (R)	B	4	F	1	9.5		1	+	3.4/0.5
	B	4	—	1	8.6				
Sasia ochracea (R)	B	4	M	1	8.9		1	+	3.5
	B	1	F	1	9.9		1	−	2.5
	B	4	F	2	9.1, 10.5		2	+	3.2/–, 4.7/2.2
Riparia riparia (M)	F	3	M	1	12.4		1	−	(small)
	F	2	—	2	9.5, 10.6				
	F	3	—	4	11.5, 11.8, 12.4, 13.0				
Hirundo rustica (M)	F	2	M	3	12.8, 13.8, 14.7		3	−	1.5, (small), 3.0
	F	3	M	13	Range 12.7 to 16.6	14.2 ± 1.0	13	−	Range, small to 2.0
	F	2	F	6	11.8, 12.3, 12.5, 13.1, 13.5, 13.6	12.8 ± 0.7	6		3.5, 4.0, 4.5, 5.0, 6.0, 4.0
	F	3	F	9	12.2, 12.9, 13.0, 13.5, 13.7, 14.2, 14.4, 14.4, 14.5	13.6 ± 0.8	9		(small)
	F	1	—	78	Range 11.3 to 15.2	13.3 ± 0.8			
	F	2	—	248	Range 11.5 to 16.4	13.6 ± 0.9			
	F	3	—	143	Range 12.0 to 16.6	13.9 ± 1.0			

Species	Site	Month	Sex	Weights (g) n	Weights (g)	mean	SD	Gonads n	Gonads activity	Gonads length (mm)
Coracina polioptera (R)	B	1	—	1	35.8					
Pericrocotus solaris (R)	B	1	—	1	14.6					
Pericrocotus brevirostris (R)	B	4	F	1	19.8			1	+	6.8/1.7
Aegithina tiphia (R)	H	4	M	1	12.3			1	+	5.5
	H	4	F	1	12.0			1	–	6.5
	H	4	—	1	13.4					
	H	9	—	1	13.6					
Pycnonotus striatus (R)	E	12	M	3	44.0, 45.5, 47.8			4	–	2.8, 4.6, 2.2, 1.9
	E	12	F	5	40.5, 42.9, 44.3, 45.0, 45.0	43.5 ± 1.9		5	–	8.0, 6.5, 5.1, 6.4, 4.6
	E	12	—	6	43.0, 45.5, 45.5, 46.0, 47.0, 48.5	45.9 ± 1.8				
Pycnonotus melanicterus (R)	E	1	M	1	28.4			1	–	(small)
	E	12	M	1	30.8			1	–	(small)
	B	2	F	—				1	–	4.7
Pycnonotus jocosus (R)	B	4	M	2	26.3, 27.6			2	+	7.3, 7.5
	B	4	F	8	23.3, 24.2, 24.5, 24.9, 25.0, 25.7, 27.6. 27.7	25.4 + 1.6		8	+	4.3/2.0, 6.1/1.7, 5.0/–, 5.5/2.0, 5.8/–, 7.0/3.0, 7.8/–, 7.9/1.8
	B	4	—	12	Range 22.9 to 27.8	25.4 ± 1.4				
	D	12	—	4	25.6, 27.9, 28.8, 29.2					
Pycnonotus xanthorrhous (R)	B	4	M	5	26.2, 26.3, 26.3, 28.9, 31.1	27.8 + 2.2		5	+	7.9, 7.3, 6.0, 8.1, 7.8
	B	4	F	7	24.4, 24.9, 25.1, 26.0, 27.5, 27.9, 28.5	26.3 ± 1.6		7	+	–/4.5, 5.7/1.3, 6.0/1.8, 5.8/–, 6.0/2.0, 10.4/3.1, 6.8/2.0
Pycnonotus aurigaster (R)	B	4	M	1	41.8			1	+	10.7
	E	1	F	1	29.7			1	–	6.4
	B	4	F	1	32.5			1	–	5.8
Pycnonotus flavescens (R)	B	4	M	2	28.9, 28.9			2	+	6.0, 6.1
	E	12	M	1	35.0			1	–	2.7
	B	4	F	6	27.1, 27.8, 27.9, 28.0, 28.1, 29.4	28.9 ± 2.1		6	+	6.9/2.4, –/1.8, 6.9/2.2, 7.6/2.4, 8.4/2.1, 9.9/3.0
	E	12	F	1	31.6			1	–	6.5
	B	4	—	3	27.6, 28.0, 28.0					
Pycnonotus goiavier (R)	K	9	—	1	28.1					
Pycnonotus blanfordi (R)	F	2	—	1	32.1					
	F	3	—	1	33.4					
	D	12	—	6	31.3, 33.2, 33.4, 33.9, 34.0, 35.7	33.4 ± 1.3				
Criniger pallidus (R)	G	11	—	10	41, 43, 44, 45, 46, 47, 48, 48, 49, 52	46 + 3				
Hypsipetes propinquus (R)	E	1	F	1	25.9			1	–	5.9
Hypsipetes mcclellandi (R)	B	2	M	1	36.6			1	+	7.0
	B	4	M	4	31.9, 34.6, 37.5, 37.7	35.4 ± 2.5		4	+	8.0, 8.0, 8.5, 9.5
	E	12	M	2	32.2, 37.2			2	–	2.0, 3.0
	B	1	F	2	32.5, 36.3			2	+	9.0/1.0, 7.0/1.8
	B	2	F	2	36.2, 38.2	35.1 ± 2.4		2	+	9.5/5.0, 9.5/2.0
	B	4	F	1	34.7			1	+	8.0/2.0
	E	12	F	2	31.3, 36.5			2	–	(small), 5.5
	E	12	—	3	37.4, 42.7, 43.5					
Hypsipetes thompsoni (R)	E	12	M	1	41.8			1	–	(small)
Dicrurus remifer (R)	B	4	M		45.4			1	+	10.3
	B	4	—	1	46.0					
Dendrocitta formosae (R)	B	4	F	1	80			1	+	7.5/1.0
Parus spilonotus (R)	B	4	M	1	16.7			1	–	1.0
	E	12	M	1	17.0			1	+	3.0
	E	12	F	1	15.8			1	–	5.0
Sylviparus modestus (R)	B	2	F	1	7.1			1	+	–/4.4
	E	12	F	2	6.2, 6.5			2	–	(small)
Sitta nagaensis (R)	B	1	M		13.9			1	+	4.5
	B	4	M	1	15.5			1	+	4.4
Certhia discolor (R)	B	4	M	1	9.5			1	–	(small)
	B	4	F	1	9.3			1	–	3.3
	E	12	F	1	9.7	9.7 ± 0.3		1	–	6.0
	B	1	—	2	9.5, 10.2					
	B	4	—	1	9.8					
	E	12	—	1	9.8					
Pellorneum ruficeps (R)	E	1	M	1	23.6			1	–	(small)
	E	1	F	1	20.6			1	–	5.1

Species	Site	Month	Sex	n	Weights (g)	mean SD	n	Gonads activity	length (mm)
Pellorneum albiventre (R)	B	4	F	1	18.4		1	+	6.8/1.0
Trichastoma tickelli (R)	B	1	M	2	17.4, 17.7		2	+	2.0, 3.6
	B	1	F	1	16.2		1	+	5.2/–
Pomatorhinus erythrogenys (R)	B	1	M	1	57.0		1	+	5.5
	E	12	F	2	52.5, 56		2	+	10.0/3.0, 6.2/–
	B	4	—	1	54				
Pomatorhinus schisticeps (R)	B	1	M	2	34.6, 36.2		2	+	4.0, 4.5
	E	12	M	1	39.5		1	–	3.4
	B	1	F	2	31.5, 35.2	35.8 ± 3.2	2	+	8.0/1.5, 10.5/4.0
	B	4	F	1	39.6		1	+	7.2/2.5
	E	12	F	2	33, 40		2	–	(small), 8.1
	B	4	—	1	32.8				
Napothera epilepidota (R)	B	1	M	2	15.4, 19.0		2	–	(small), 1.8
	B	1	F	3	14.5, 15.4, 15.5		3	–	5.2, 3.7, 3.7
Pnoepyga pusilla (R)	B	2	F	1	12.9		1	–	5.5
	B	4	F	1	12.5		1	+	5.2/1.0
Stachyris rufifrons (R)	B	1	M	2	8.5, 8.7		2	+	3.5, 7.0
	E	1	M	1	8.5	8.1 ± 0.6	1	–	5.2
	B	1	F	1	7.5		1	+	6.1/1.5
	E	1	F	1	7.5		1	–	4.2
Stachyris chrysaea (R)	B	1	M	2	7.8*, 8.0		2	+	1.0*(small, juv), 6.5
	B	4	M	2	7.8, 8.0	7.9 ± 0.2	1	+	*(n.m.), 6.5
	E	12	M	2	7.5, 8.1		2	–	5.0, 1.5
	B	1	F	4	7.0, 7.4, 8.5, 11.0	8.1 ± 1.4	4	+	4.7/–, 4.0/1.5, 6.0/1.5, –/14.0,
	B	4	F	1	7.3		1	–	5.0
	E	12	F	2	7.6, 8.1		2	–	4.5, 5.0
Stachyris nigriceps (R)	B	1	M	5	14.9, 16.2, 16.5, 16.5, 17.0		5	+	10.0, 10.5, 7.0, 8.5, 10.0
	B	4	M	4	14.6, 15.3*, 16.0*, 16.1	15.8 ± 0.8	4	+	9.7, 1.3*, 1.3*, 9.8
	E	12	M	2	14.5, 16.0		2	+	2.5, 10.0
	B	1	F	6	13.1, 14.6, 14.8, 15.0, 16.0, 19.0		6	+	5.0/–, 6.5/1.0, 5.5/–, 5.0/–, 4.5/–, 5.6/–
	B	4	F	2	11.9, 14.8	14.9 ± 1.8	3	+	5.0/–, 5.9/1.8, 6.0/–
	E	12	F	3	14.1, 15.0, 15.7		2	+	10.1/–, –/4.0, (n.m.)
	E	12	—	2	15.8, 16.3				
Macronous gularis (R)	E	1	M	2	10.0, 10.7		2	+	5.2, 1.7
	E	1	F	1	9.5		1	–	3.6
Chrysomma sinense (R)	F	2	M	2	15.7, 16.5		2	–	1.7, 1.9
	F	2	F	2	14.5, 15.6		2	–	4.0, 4.5
	E	12	F	2	17.7, 21.0		1	–	5.8, (n.m.)
	A	2	—	3	17.6, 18.5, 19.5				
	F	3	—	2	16.0, 16.4				
	K	9	—	6	17.0, 17.3, 17.6, 17.8, 18.5, 20.1	17.7 ± 1.8			
	K	12	—	6	15.8, 16.0, 17.0, 17.6, 17.8, 20.1				
	D	12	—	2	18.7, 21.5				
Timalia pileata (R)	A	2	—	1	18.5				
	K	9	—	1	21.5	20.4 ± 1.2			
	D	12	—	3	20.4, 20.8, 21.0				
Garrulax erythrocephalus (R)	B	2	M	3	81.0, 83.5, 85.0		3	–	3.2, 2.5, 3.5
	B	4	M	1	77		1	+	5.9
	E	12	M	1	76.5		1	–	(small)
	B	1	F	2	72.3, 75.0	78.3 ± 5.6	2	–	8.0/1.0, 7.8/–
	E	12	F	2	70.0, 71.5		2	–	(small), 7.5/–
	E	12	—	4	78.5, 79.0, 79.5, 89.5				
Liocichla phoenicea (R)	B	1	M	1	47.0		1	–	(small)
	B	4	M	1	47.0		1	+	10.4
	B	1	F	1	41.6		1	–	6.3
	B	2	F	1	47.9	47.7 ± 4.5	1	–	5.1
	B	4	F	1	44.5		1	+	8.8/1.5
	B	4	—	1	55.0				
Leiothrix argentauris (R)	B	4	M	3	23.8, 24.8, 25.6		3	+	11.5, 12.4, 8.5
	E	12	M	2	25.5, 26.0		2	–	(small), (small)
	B	4	F	2	26.4, 26.6		2	+	–/3.5, –/8.4
	E	12	F	2	23.8, 24.5	25.5 ± 1.0	2	–	5.8, 7.5
	E	12	—	13	24.2, 24.3, 24.8, 25.3, 25.5, 25.6, 25.6, 25.7 26.2, 26.5, 26.7, 27.0, 27.5				
Pteruthius flaviscapis (R)	B	2	F	1	32.6		1	–	6.3
Actinodura ramsayi (R)	B	1	M	1	39.5		1	+	6.4
	B	4	M	3	37.4, 37.9, 38.5	38.4 ± 2.0	3	+	8.8, 9.6, 8.0
	B	4	F	1	35.5		1	–	8.0
	E	12	F	1	41.3		1	–	6.6

Species	Site	Month	Sex	n	Weights (g)	mean	SD	Gonads n	activity	length (mm)
Minla cyanouroptera (R)	B	2	M	1	15.4			1	–	4.3
	B	4	M	1	17.3			1	+	5.7
	B	1	F	1	15.8			1	–	5.1
	B	2	F	1	15.8			1	+	5.0/1.0
Minla strigula (R)	E	12	M	5	19.0, 19.5, 20.5 21.6, 21.9	20.5 ± 1.3		5	–	(small), (small), 2.0, (small), 2.5
	E	12	F	7	18.5, 18.7, 18.7, 19.2, 19.2, 19.3, 20.3	19.1 ± 0.6		7	–	(small), 3.0, 5.0, (small), 6.0, (small), (small)
	E	5	—	8	19.0, 19.0, 19.2, 19.3, 20.5, 20.5, 20.8, 20.8	19.9 ± 0.8				
	E	12	—	10	18.2, 18.5, 18.7, 19.3, 19.3, 19.6, 19.8, 19.8, 19.9, 20.4	19.4 ± 0.7				
Alcippe castaneceps (R)	B	1	M	3	10.0, 10.3, 10.7			3	+	3.5, 5.0, 2.5
	B	2	M	14	9.2, 9.2, 9.5, 9.5 9.6, 9.7, 9.9, 9.9, 10.4, 10.5, 10.5, 10.6 10.8, 11.2	10.1 ± 0.6		14	+	2.5, 2.4, 6.5, 2.0, 3.0, 4.0, 6.0, 6.5, 6.4, 7.5, 6.5, 6.0, 2.5, 6.0
	B	4	M	1	9.4			1	+	5.8
	E	12	M	14	9.0, 9.2, 9.4, 9.5 9.6, 9.7, 10.0, 10.4 10.4, 10.6, 10.8, 10.8, 11.2, 11.2	10.1 ± 0.7		14	–	1.5, 1.5, 2.0, (small), 1.5, 2.5, 1.0, 2.0, (small), (small), 1.5, 2.0, 2.5, (small)
	B	1	F	1	11.5			1	+	18.0/4.5
	B	2	F	6	8.9, 9.2, 9.5, 9.7, 9.8, 10.0	9.8 ± 0.8		6	+	4.5/1.0, 5.0/1.0, 5.0/1.0, 4.7/1.3, 4.0/–, 6.0/1.7
	E	12	F	10	9.2, 9.2, 9.5, 9.7, 10.0, 10.2, 10.3, 10.4, 10.5, 10.5	10.0 ± 0.5		10	–	4.5, 4.0, (small), 5.0, 4.5, 4.5, (small), (small), (small)
	B	2	—	6	9.7, 9.7, 9.9, 10.0, 10.3, 10.7	10.0 ± 0.7				
	B	4	—	3	8.6, 10.5, 10.7					
	E	12	—	23	Range 8.3 to 10.5	9.5 ± 0.6				
Alcippe poioicephala (R)	E	1	F	1	15.4			1	–	5.9
Alcippe morrisonia (R)	B	1	M	9	13.2, 13.7, 13.9, 14.5, 14.5, 15.1, 15.2, 15.5, 15.5	14.7 ± 0.7		9	+	2.5, 3.0, (small), 3.0, 5.0, 2.0, 6.0, 5.5, 2.0
	B	2	M	5	13.9, 14.8, 14.8, 14.9, 15.6			5	+	6.0, 4.0, 6.0, 4.4, 5.1
	B	4	M	3	13.8, 14.0, 14.1			3	+	6.0, 4.0, 7.7
	E	12	M	6	13.0, 13.6, 14.0, 14.2, 14.2, 15.1	14.0 ± 0.7		6	–	2.2, (small), 1.5, 2.0, 3.0, 2.5
	B	1	F	3	13.5, 14.6, 15.7	14.5 ± 0.8		3	–	5.5, 5.5, 4.5
	B	2	F	4	13.9, 13.9, 14.8, 14.9			4	+	5.2/1.4, 5.3/1.4, 6.0/2.0, 6.5/1.0
	B	4	F	3	13.7, 14.6, 16.8			3	+	5.0/1.0, 6.0/1.8, 8.0/2.0
	E	12	F	4	12.5, 12.8, 14.3, 14.4			4	–	4.5, 4.5, 5.5, (small)
	B	1	—	20	Range 13.6 to 15.9	14.5 ± 0.7				
	B	4	—	10	Range 13.4 to 15.5	14.2 ± 0.5				
	E	12	—	30	Range 12.8 to 16.5	14.8 ± 0.7				
Heterophasia annectens (R)	B	4	M	1	24.2			1	+	5.7
	B	1	F	1	24.8			1	+	8.1/1.0
Heterophasia melanoleuca (R)	B	4	M	2	36.4, 36.4	33.3 ± 2.6		2	+	7.8, 9.0
	E	12	M	4	30.5, 31.1, 32.5, 33.0			4	–	1.8. 1.7, 2.6, 2.5
	B	1	F	1	30.1	31.7 ± 1.6		1	–	7.0
	B	4	F	1	31.2			1	+	9.5/2.0
	E	12	F	3	30.6, 32.8, 33.8			3	–	4.1, 6.3, 7.4
Yuhina flavicollis (R)	B	2	M	2	15.2, 16.8	15.0 ± 1.5		2	–	3.0, 4.4
	B	4	M	2	14.0, 14.6			2	+	6.3, 6.6
	B	2	F	1	14.9			1	+	5.8/1.3
	B	4	F	2	12.5, 16.7			2	+	–/1.7, –/7.5
Yuhina zantholeuca (R)	G	11	—	1	11.2					
Paradoxornis gularis (R)	B	1	—	1	27.7					
	B	4	M	1	26.1			1	+	7.8
	B	4	F	1	35.5			1	+	11.0
Brachypteryx leucophrys (R)	B	4	M	1	13.6			1	+	4.3
	B	1	F	1	15.2			1	–	4.5
	B	4	F	2	13.9, 15.5			2	+	6.6/1.6, 7.0/1.3
Brachypteryx montana (R)	E	4	M	1	20.8			1	+	7.0
	E	4	—	1	18.6					

Species	Site	Month	Sex	n	Weights (g)	mean	SD	n	Gonads activity	length (mm)
Erithacus calliope (M)	B	4	F	1	22.2			1	–	4.5
	F	1	—	2	19.3, 20.5					
	F	2	—	5	18.8, 19.1, 19.5, 20.8, 21.1	20.1	± 1.4			
	F	3	—	3	18.8, 19.8, 21.3					
	D	12	—	3	18.0, 20.3, 23.4					
	K	12	—	3	18.8, 18.9, 21.0					
Erithacus svecicus (M)	F	1	M	2	14.9, 15.2			2	–	(both small)
	F	2	M	2	15.0, 15.7			2	–	(both small)
	L	5	M	1	17.8			1	–	1.5
	F	1	F	1	13.7			1	–	4.5
	L	5	F	2	14.6, 16.0			2	–	4.2, 4.7
	A	2	—	18	Range 13.6 to 18.0	15.2	± 1.1			
	F	2	—	2	15.3, 15.4					
	F	3	—	5	15.0, 15.2, 15.8, 15.8, 15.9	15.5	± 0.4			
	K	12	—	3	14.4, 15.3, 17.3					
Erithacus cyane (M)	E	1	M	1	15.0			1	–	(small)
	H	9	—	1	14.1					
Tarsiger cyanurus (M)	B	2	M	2	13.7, 14.2			2	–	(both small)
	E	12	M	1	12.5			1	–	(small)
	B	2	F	2	13.2, 14.7	13.5	± 0.9	2	–	4.5, 4.0
	E	12	F	1	13.9			2	–	(both small)
	B	2	—	1	12.4					
Copsychus saularis (R)	H	4	—	2	35.1, 38.0					
	D	12	—	2	37.8, 40.0					
Cinclidium leucurum (R)	B	1	M	5	22.7, 25.5, 25.8, 26.5, 31.9	26.5	± 3.4	5	–	2.0, (small), (small), 2.0, 1.5
	B	4	M	5	24.3, 24.4, 24.6, 25.4, 25.8	24.9	± 0.7	5	+	4.5, 3.8, 5.5, 3.5, 6.4
	E	12	M	2	20.5, 27.5			2		(both small)
	E	12	—	1	25.5					
Saxicola torquata (M)	F	1	—	1	12.6					
	F	2	—	2	12.2, 12.5					
	A	2	—	9	11.8, 12.2, 12.8, 12.8, 12.8, 13.0, 13.3, 13.5, 13.6	12.8	± 0.5			
Saxicola caprata (R)	A	2	—	2	13.0, 13.8					
Saxicola ferrea (R)	E	12	M	2	15.0, 15.7			2	–	2.0, (small)
Myiophoneus caeruleus (R)	E	12	F	1	134			1	–	5.5
	B	2	—	1	127					
Zoothera marginata (R)	E	12	F	1	81			1	–	7.5
Turdus obscurus (M)	B	4	M	1	55			1	–	2.8
	E	4	F	1	67			1		7.0/0.5
Gerygone sulphurea (R)	H	4	F	2	5.5, 5.8			2	+	3.3/0.5, 4.5/0.5
Seicercus burkii (M)	B	1	M	3	6.9, 6.9, 7.0			3	–	(small), 1.0, 0.9
	B	4	M	1	7.6			1	–	2.0
	E	12	M	2	6.8, 7.0	7.0	± 0.5	2	–	(both small)
	B	4	F	2	6.3, 6.6			2	–	3.5, 2.1
	B	1	—	2	6.5, 8.0					
	E	12	—	4	6.2, 6.9, 7.2, 7.5					
Abroscopus superciliaris (R)	E	1	M	1	5.8			1	–	(small)
Phylloscopus subaffinis (M)	E	12	M	1	6.2			1	–	(small)
Phylloscopus fuscatus (M)	H	4	F	2	7.0, 8.8			2	–	3.0, 3.5
	F	1	—	3	7.1, 8.3, 9.4					
	A,F	2	—	18	Range 7.0 to 9.4	7.9	± 0.6			
	H	4	—	1	10.8					
	D	12	—	2	7.5, 9.4					
	K	12	—	2	8.6, 9.4					
Phylloscopus armandii (M)	B	4	M	1	9.6			1	–	1.5
	E	12	M	1	9.4			1	–	(small)
	E	12	F	1	9.0			1	–	3.8
Phylloscopus schwarzi (M)	B	4	F	1	9.3			1	–	9.0
Phylloscopus pulcher (M)	B	2	M	7	6.3, 6.3, 6.3, 6.4, 6.4, 6.4, 6.6	6.2	± 0.4	7	–	0.5, 1.0, (small), 0.5, 0.5, (small), (small)
	E	12	M	2	5.5, 5.5			2		(both small)
	B	1	F	1	5.9			1	–	3.3
Phylloscopus inornatus (M)	E	12	M	3	4.8, 6.0, 6.0			3	–	(all small)
	E	12	F	2	5.0, 5.4					
	E	12	—	1	5.6	5.5	± 0.4			
	B	1	—	1	5.5					
	D	12	—	3	5.3, 5.4, 5.5					

Species	Site	Month	Sex	n	Weights (g)	mean SD	n	Gonads activity	length (mm)
Phylloscopus proregulus (M)	B	1	M	1	5.2		1	–	(small)
	B	4	M	1	5.8		1	+	2.3
	B	1	F	1	5.6	5.4 ± 0.3	1	–	3.0
	B	4	F	1	5.4				
	B	4	—	1	5.1				
Phylloscopus maculipennis (R)	E	5	M	3	4.3, 4.8, 4.9				(n.m.)
	E	12	M	2	4.7, 4.8		2	–	2.0, 2.5
	E	12	F	1	4.6	4.7 ± 0.2	1	–	4.0
	E	5	—	3	4.5, 4.6, 5.1				
	E	12	—	4	4.5, 4.8, 4.8, 4.8				
Phylloscopus borealis (M)	H	9	—	1	10.1				
Phylloscopus trochiloides (M)	E	12	F		7.3		1	–	(small)
Phylloscopus reguloides (M)	B	1	M	1	8.5		1	–	(small)
	B	2	—	1	6.9				
Phylloscopus davisoni (R)	B	1	M	2	6.3, 8.1		2	+	3.0, 1.5
	B	4	M	1	6.3		1	+	3.1
	E	12	M	1	6.4		1	–	2.9
	B	4	F	1	6.8	6.4 ± 0.7	1	–	3.3
	E	12	F	2	5.8, 6.5		2	–	5.7, 2.6
	B	1	—	1	6.2		1	–	
	B	4	—	1	5.7				
Acrocephalus aedon (M)	D	12	—	4	21.7, 22.6, 22.9, 23.2				
Acrocephalus arundinaceus (M)	F	2	M	3	23.9, 27.2, 29.5		2	–	1.5, (small), (small)
	L	5	M		28.5		1	–	2.3
	F	2	F	2	20.8, 21.1		2	–	6.5, 5.0
	H	4	F	1	20.1		1	–	5.5
	L	5	F	2	18.4, 22.2		2	–	5.6, 6.5
	A	2	—	2	23.9, 25.7				
	F	3	—	2	20.5, 21.9				
	H	4	—	2	23.0, 23.8				
	L	5	—	25	Range 18.3 to 31.3	23.6 ± 3.6			
	K	9	—	13	Range 21.6 to 30.7	25.2 ± 2.7			
	K	12	—	52	Range 20.4 to 28.3	24.0 ± 1.7			
Acrocephalus bistrigiceps (M)	F	1	M	3	7.8, 9.1, 9.4		3	–	(all small)
	F	2	M	9	6.9, 7.1, 7.2, 7.7, 7.9, 8.3, 8.3, 8.3 8.5		9	–	1.0, 1.0, 1.0, 1.3, 1.0, 1.0, (small), (small), (small)
	L	5	M	1	7.3		1	–	1.0
	F	2	F	1	7.8		1	–	3.7
	L	5	F	1	7.6		1	–	4.8
	A	2	—	3	7.3, 8.0, 8.6				
	F	1	—	1	11.6	8.2 ± 0.9			
	F	2	—	1	7.4				
	F	3	—	1	7.2				
	H	4	—	5	7.6, 8.0, 8.0, 8.5, 8.9				
	L	5	—	8	7.6, 8.1, 8.3, 8.3, 8.6, 8.8, 8.9, 9.2,				
	D	12	—	1	9.3				
	K	12	—	7	7.0, 7.2, 7.5, 8.1, 8.3, 8.6, 10.5				
Acrocephalus agricola (M)	L	5	F	1	7.9		1	–	2.8
	A	2	—	1	7.7				
Acrocephalus concinens (M)	F	2	M		8.9		1	–	2.0
	F	3	M	1	8.7		1	–	2.0
	F	2	F	1	7.9		1	–	3.2
	A	2	—	1	7.7				
Locustella certhiola (M)	F	1	M	1	12.1		1	–	(small)
	F	2	M	1	13.9		1	–	2.0
	L	5	M	1	14.9		1	–	2.0
	F	1	F	1	13.9	14.0 ± 1.0	1	–	4.0
	H	4	—	1	14.7				
	D	12	—	1	14.7				
Locustella lanceolata (M)	F	2	F	1	10.6		1	–	3.6
Megalurus palustris (R)	A	2	—	2	36.5, 39.0				
Orthotomus sutorius (R)	H	4	M	1	7.0		1	+	3.7
	H	4	F	2	6.1, 6.8		2	+	4.5, 8.0/2.0
	H	4	—	5	6.7, 7.0, 7.9, 8.0, 8.8	7.2 ± 0.7			
	H	9	—	4	6.6, 7.0, 7.1, 7.3				
	K	9	—	1	7.4				
Orthotomus cucullatus (R)	B	1	M	1	6.1		1	(+)	2.0
	B	1	F	1	5.8		1	–	3.5
	B	1	—	2	5.3, 5.4				

Species	Site	Month	Sex	n	Weights (g)	mean	SD	n	Gonads activity	length (mm)
Prinia hodgsonii (R)	E	12	M	—				1	–	1.5
	E	12	F	1	5.5			1	–	4.8
Prinia subflava (R)	H	4	M	3	9.6, 10.1, 10.1	8.8 ± 1.4		3	+	5.0, 5.0, 4.5
	F	2	F	1	7.5			1	–	4.0
	A	2	—	4	7.0, 7.0, 7.2, 7.7					
	K	9	—	4	9.2, 9.8, 10.0, 10.4					
Prinia flaviventris (R)	F	1	M	1	6.9	8.9 ± 1.5		1	+	2.5
	F	2	M	1	7.2			1	+	1.5
	A	1	—	4	9.2, 9.8, 10.4, 10.4					
Prinia atrogularis (R)	C	4	M	1	11.5	10.2 ± 1.4		1	–	0.5
	C	1	F	1	8.0			1	+	4.2
	C	4	F	3	10.0, 10.1, 11.2, —			4	+	6.2/2.2,5.0/1.2, 5.8/1.0,5.9/–
Cisticola exilis (R)	F	2	M	1	6.9			1	–	(small)
	F	2	—	1	6.3					
Tesia olivea (R)	C	1	M	1	7.9			1	–	1.0
	C	2	M	1	9.1			1	–	1.3
	E	12	—	1	7.5					
Cettia squameiceps (M)	E	12	M	1	8.8			1	–	(small)
Cettia fortipes (M)	C	4	F	1	7.3			1	–	3.8
Bradypterus thoracicus (M)	F	2	M	2	8.8, 10.5			1	–	(small), (small)
	A	2	—	1	9.3					
Muscicapa sibirica (M)	H	4	M	1	9.3			1	–	1.5
Ficedula parva (M)	E	12	M	1	9.0			1	–	(small)
	D	12	—	2	10.0, 10.8					
Ficedula strophiata (M)	B	2	F	1	12.4			1	–	4.7
	B	4	F	1	11.6			1	–	4.5
	E	12	F	1	11.0			1	–	(small)
Ficedula monileger (R)	B	1	M	7	10.5, 10.5, 10,5, 10.9, 11.1, 11.5, 12.1	11.0 ± 0.5		7	–	1.0, 1.5, 1.5, 2.0, 2.0, 2.0, 1.5
	B	4	M	4	10.7, 10.8, 11.1, 11.6			4	+	6.0, 6.0, 6.2, 6.2,
	B	1	F	4	10.5, 10.6, 10.6, 12.3	10.9 ± 0.8		4	–	5.0, 4.5, 4.0, 4.5
	B	4	F	1	10.7			1	+	4.0/0.5
	B	1	—	3	10.5, 10.9, 13.2					
Ficedula hyperythra (R)	E	12	M	2	8.3, 8.5	8.5 ± 0.2				
	B	2	M	4	8.3, 8.4, 8.6, 8.8			4	–	2.2, 1.4, 2.1, 1.1
	E	12	F	2	7.7, 8.2	8.1 ± 0.3		2	–	5.0, 3.5
	B	1	F	2	7.8, 8.0			2	–	3.5, 4.0
	B	2	F	1	8.3			1	–	5.5
	E	5	F	1	8.5					
Ficedula hodgsonii (M)	B	4	M	1	10.4			1	–	2.2
	B	1	F	1	10.2			1	–	3.0
	B	4	F	2	10.1, 10.7			2	–	3.9, 4.0
Ficedula westermanni (R)	B	4	M		8.2			1	+	5.0
Ficedula tricolor (M)	E	12	M	1	7.2			1	–	1.0
	E	12	F	1	7.5			1	–	2.6
	B	1	F	1	6.8			1	–	2.5
	B	4	F	1	8.4			1	–	4.0
Cyanoptila cyanomelana (M)	B	4	M	1	25			1	–	3.0
Niltava grandis (R)	B	1	M	4	34.0, 35.4, 35.8, 38.3	36.7 ± 1.8		4	–	2.5, 2.0, 2.4, 2.0
	B	2	M	1	36.2			1	–	3.0
	B	4	M	1	35.6			1	+	7.6
	B	2	F	1	40.3			1	+	9.0/0.5
	B	4	F	1	37.1			1	+	8.0/2.6
	E	12	F	1	38.0			1	–	7.0
	B	1	—	1	36.0					
Niltava macgrigoriae (R)	B	1	M	1	12.0			1	–	2.0
	E	12	M	1	11.6			1	–	(n.m.)
	B	4	F	1	11.0			1	+	7.0/1.4
Niltava sundara (M)	B	4	M	4	21.6, 21.8, 22.2, 22.5	22.7 ± 0.9		4	–	2.3, 2.5, 3.2, 4.3
	E	12	M	2	22.5, 22.7			2	–	(small), 1.5
	B	1	F	3	22.5, 23.0, 24.2			3	–	5.5, 4.5, 6.0
	E	12	F	1	21.7			1	–	4.5
	E	12	—	1	24.5					
Niltava vivida (M)	B	2	M	1	31			1	–	1.5
Cyornis rubeculoides glaucicomans (M)	B	4	—	1	14.7					
Cyornis banyumas (R)	B	1	M	2	14.6, 15.3	14.5 ± 1.0		2	–	3.0, 3.0
	B	2	M	1	12.8			1	–	2.3
	E	12	M	1	14.5					
	B	1	F	1	14.3			1	–	4.5

Species	Site	Month	Sex	n	Weights (g)	mean	SD	n	Gonads activity	length (mm)
Culcicicapa ceylonensis (R)	B	1	M	1	7.5			1	−	1.5
	B	4	M	1	6.9			1	+	5.3
	B	4	F	1	6.7			1	+	4.4
Rhipidura hypoxantha (R)	B	2	M	1	5.2			1	+	2.0
	E	12	F	1	4.4			1	−	2.7
Rhipidura albicollis	B	1	M	2	10.0, 11.5			2	+	3.0, 3.0
	B	1	F	5	9.8, 9.8, 10.1, 10.1, 10.2			5	+	4.0/1.0, 4.5/−, 3.5/−, 5.5/1.0, 4.0/−
	B	4	F	1	10.4			1		4.0
	E	12	F	2	9.0, 9.2	10.2	± 0.7	1	−	(small), 4.5
	B	1	—	1	9.7					
	B	4	—	2	11.2, 11.2					
	E	12	—	4	10.0, 10.2, 10.5, 10.8					
Rhipidura javanica (R)	H	4	M	1	12.5			1	+	6.4
	H	4	F	2	12.5, 13.2			2	+	4.5/1.5, 6.5/3.0
	H	4	—	2	13.1, 13.5	12.5	± 0.9			
	H	9	—	8	10.7, 11.7, 11.9, 12.0, 12.0, 12.2, 13.8, 13.9					
Hypothymis azurea (R)	H	9	—	1	10.9					
Terpsiphone atrocaudata (M)	H	4	M	2	18.7			1	−	2.5
Pachycephala cinerea (R)	H	4	M	2	17.1, 17.7			2	+	8.0, 8.0
Motacilla cinerea (M)	A	2	—	1	16.2					
Anthus hodgsoni (M)	E	12	M	2	21.0, 21.0			2	−	1.5, 2.1
	E	12	F	1	21.6	21.2	± 1.7	1	−	5.5
	B	4	F	2	18.9, 23.7			2	−	5.0, 5.0
Anthus novaeseelandiae richardi (M)	C	1	—	1	29.6					
(R)	A	2	—	1	20.0					
Anthus roseatus (M)	A	2	—	3	17.5, 22.4, 23.2					
Lanius cristatus (M)	D	12	—	5	29.2, 30.3, 31.5, 31.5, 32.6	31.5	± 1.7			
	K	9	—	1	34.1					
Lanius tigrinus (M)	H	9	—	1	26.9					
Lanius schach (R)	B	4	M	1	40.5			1	+	11.0
	K	9	—	1	46.1					
Sturnus contra (R)	H	11	—	1	76.5					
Aethopyga gouldiae (M)	B	1	M	1	6.9			1	−	1.0
	B	1	F	1	6.1			1	−	2.0
Aethopyga nipalensis (R)	E	4	M	1	6.3			1	+	4.1
	E	12	M	3	6.0, 6.3, 6.5	6.0	± 0.6	3	−	(all small)
	E	12	F	1	5.4,			1	−	(n.m.)
	E	5	—	1	5.6					
Aethopyga saturata (R)	B	4	M	2	5.5, 5.7			2	+	5.0, 5.0
	E	12	M	1	5.7	5.3	± 0.4	1	−	(small)
	B	1	F	2	4.6, 5.2			2	+	3.1/−, 5.5/1.0
	B	4	F	1	5.0			1	+	2.9/1.0
Arachnothera magna (R)	E	12	M	1	32.9			1	−	2.0
Zosterops erythopleura (M)	B	1	M	1	11.5			1	−	1.0
	C	4	M	2	9.9, 11.2			2	−	1.0, 1.4
Zosterops japonica (M)	C	1	M		10.2			1	−	1.0
	E	12	M	2	9.4, 9.5			2	−	1.0, 1.3
	E	12	F	6	9.0, 9.1, 9.2, 9.3, 9.8, 9.8	9.4	± 0.4	6	−	4.5, (small), 5.0, 4.0, 5.0, (small)
	E	12	—	4	8.8, 9.3, 9.5, 9.8					
Zosterops palpebrosa (R)	B	4	M	1	7.2			1	+	3.7
Passer flaveolus (R)	H	4	—	1	16.6					
Ploceus manyar (R)	L	5	M	1	18.4			1	+	3.5
	L	5	M	1	16.4			1	−	1.5
Ploceus hypoxanthus (R)	F	1	M	1	18.6			1	−	(small)
Lonchura striata (R)	F	2	—	1	11.5					
Lonchura punctulata (R)	F	2	—	4	11.6, 12.0, 12.3, 12.3					
	A	2	—	1	13.8	12.6	± 0.7			
	K	9	—	2	12.8, 12.9					
	D	12	—	1	13.0					
Emberiza fucata (M)	A	2	—	2	21.1, 22.5					
Emberiza aureola (M)	A	2	—	1	17.8					
Emberiza rutila (M)	B	2	M	2	15.2, 16.2			2	−	1.3, 1.2
	B	1	F	1	15.8			1	−	3.5

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References:

von Bröckel, K. 1973. Vergleichende Messungen an lebenden und frischtoten Gartengrasmücken (*Sylvia borin*). *J. Orn.* 114: 114–122.

Chasen, F. N. & Kloss, C. B. 1932. On birds from Doi Sutep, 5,600 feet, north Siam. *J. Siam Soc. Nat. Hist. Suppl.* 8: 231–248.

Deignan, H. G. 1945. The birds of northern Thailand. *U.S. Natn. Mus. Bull.* 186: 1–616.

Herbert, E. G. 1923–26. Nests and eggs of birds in Central Siam. *J. Nat. Hist. Soc. Siam* 6: 81–123, 215–222, 293–322, 323–356.

McClure, H. E. 1974a. *Migration and Survival of the Birds of Asia.* U.S. Army Medical Component, SEATO Medical Research Laboratory, Bangkok.

McClure, H. E. 1974b. Some bionomics of the birds of Khao Yai National Park, Thailand. *Nat. Hist. Bull. Siam Soc.* 25: 99–194.

McClure, H. E. & Kwanyuen, P. 1973. The avifaunal complex of an Open-billed Stork Colony (*Anastomus oscitans*) in Thailand. *Nat. Hist. Bull. Siam Soc.* 25: 133–156.

Medway, Lord. 1973. A ringing study of migratory Barn Swallows in West Malaysia. *Ibis* 115: 60–85.

Nisbet, I. C. T. 1967. Migration and moult in Pallas's Grasshopper Warbler. *Bird Study* 14: 96–103.

Nisbet, I. C. T. & Medway, Lord. 1972. Dispersion, population ecology and migration of Eastern Great Reed Warblers *Acrocephalus orientalis* wintering in Malaysia. *Ibis* 114: 451–494.

Riley, J. H. 1938. Birds from Siam and the Malay Peninsula in the United States National Museum collected by Drs. Hugh M. Smith and William L. Abbott. *U.S. Natn. Mus. Bull.* 172: 1–581.

Round, P. D. 1982. Notes on breeding birds in north-west Thailand. *Nat. Hist. Bull. Siam. Soc.* 30: 1–14.

Sokal, R. R. & Rohlf, F. J. 1981. *Biometry*, 2nd edition. W. H. Freeman & Co., San Francisco.

Ward, P. 1969. The annual cycle of the Yellow-vented Bulbul *Pycnonotus goiavier* in a humid equatorial environment. *J. Zool. Soc. Lond.* 156: 25–46.

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The Rufous Sparrows of the Cape Verde Islands

by D. Summers-Smith

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The African Rufous Sparrows occur in a number of widely separated populations south of 18°N. They were first described by A. Smith (1836) as *Pyrgita Motitensis*, with the type locality subsequently indentified by Winterbottom (1966) as Motito in northern Cape Province, South Africa. (*Pyrgita* is now recognised as a synonym for *Passer* and has been suppressed.) Darwin (1841) collected a male from S. Tiago island in the Cape Verde Archipelago in 1832 during the voyage of the *Beagle;* this was later given the name *Pyrgita iagoensis* in 1837 by Gould (1837).